

## QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQs SECTION OF ARPA-E'S WEBSITE ([HTTP://ARPA-E.ENERGY.GOV/?Q=FAQ/GENERAL-QUESTIONS](http://arpa-e.energy.gov/?q=faq/general-questions)) FOR ANSWERS TO MANY GENERAL QUESTIONS ABOUT ARPA-E AND ARPA-E'S FUNDING OPPORTUNITY ANNOUNCEMENTS. ADDITIONAL QUESTIONS SPECIFIC TO THIS FOA ONLY ARE INCLUDED BELOW. PLEASE REVIEW ALL EXISTING GENERAL FAQs AND FOA-SPECIFIC QUESTIONS BEFORE SUBMITTING NEW QUESTIONS TO ARPA-E.

### I. General Questions from the ARPA-E Website.

#### Q. If I have questions about this funding announcement, who do I contact?

**ANSWER:** If a question is not answered in General Q&A section of ARPA-E's website (<http://arpa-e.energy.gov/?q=faq/general-questions>), applicants may submit questions regarding an ARPA-E FOA to [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov) (link sends e-mail). Due to the volume of questions received, ARPA-E will only answer questions that have not yet been answered and posted at the above link. All emails must include the FOA name and number in the subject line. The cover page of each FOA states the deadline to submit questions to [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov). ARPA-E will not accept or respond to communications received by other means (e.g., fax, telephone, mail, hand delivery). Emails sent to other email addresses will be disregarded.

#### Q. I have developed a technology that may be a good for this ARPA-E FOA. Will ARPA-E review my idea and let me know if it is responsive to the FOA?

**ANSWER:** No. ARPA-E will review compliant and responsive concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application. See the "Application Process Overview" section of the FOA for the Concept Paper review process. Compliance criteria may be found in the "Compliant Criteria" section of the FOA. Similarly, responsiveness criteria may be found in the "Responsiveness Criteria" and "Submissions Specifically Not of Interest" sections of the FOA.

#### Q. Our project team includes several team members. Does each team member need to contribute cost share equally?

**ANSWER:** Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for paying the entire cost share. Each Project Team is free to determine how much each team member will contribute towards the cost share requirement. The amount contributed by individual Project Team members may vary, so long as the cost share requirement for the project as a whole is met.

### II. Concept Paper Phase Questions:

#### Q1. How difficult is it to get permits for open water test sites for farm systems in Federal Waters?

**ANSWER:** It will be the responsibility of MARINER FOA Category 1 and Category 2 awardees to judiciously seek out and obtain any required permits or authorizations on their own accord for the use of state or federal waters for deployment of infrastructure for cultivation of macroalgae for research purposes. ARPA-E does not require these permits to be in place at the time of submission of the application.

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**Q2. Please share the ARPA-E model spreadsheets used to calculate the information presented in FOA Figs. 4 – 7, FOA pp 12 -15. It seems fair to give everyone the same starting point so that ARPA-E can compare one proposal to another.**

**ANSWER:** As set forth in Section V.A.1 of the FOA, Concept Paper submissions will not be evaluated against each other since they are not submitted in accordance with a common work statement. ARPA-E intends to publish a techno-economic calculation model with the Full Application version of the FOA, which will assist applicants in preparing their techno-economic calculations for their Full Application.

**Q3. I have a quick question about the target range for budget available for project proposed for the various categories. I see in the FOA, a budget target of \$500K for Cat 1. I understand that budgets for Cat 2 would be substantially higher due to their scope. What about Cats 3-5? I am particularly interested in Cat 4, up to 36 months. Any rough guideline on expected magnitude of projects? And any restrictions on how that total budget would be allocated over the various years?**

**ANSWER:** The \$500,000 budget target applies only to Phase1 of Category 1. For all other information, refer to Section II.A (Award Overview) of the FOA.

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### Q4. Questions to inform our proposal:

1. Is it acceptable to propose culture systems for two or three algae species? Or does a single algae species need to be identified?
2. Production parameters are not well defined for some tropical algae species of interest. Can ARPA-E funds be used, as part of this project, to test algae culture in land-based systems, with a goal of optimizing water depth and nutrient requirements, and to obtain better estimates of growth rates?
3. Can we have access to the techno-economic models and inputs that were used as examples in on page 13 of the FOA?
4. Is redirecting anthropogenic run-off considered direct fertilization?
5. Is a pelletized form of anthropogenic run-off considered a synthesized fertilizer, and thus would it be disallowed?
6. Can we use artificial nutrient additions to the offshore prototype to simulate the eventual incorporation of a naturally-present nutrient source, or does the actual intended naturally-present nutrient source need to be incorporated into the prototype from the outset?

**ANSWER:**

1. Culture systems that are suitable for more than one species of macroalgae are acceptable.
2. As specified in Section I.E (Technical Performance Targets) of the FOA, the cultivation and harvest systems to be proposed for Categories 1 and 2 need to be destined for deployment in the ocean. The relevant prototypes are expected to be tested in an ocean environment. However, as part of the experimental work plan the well justified use of ocean-simulating environments may be considered for developing individual design parameters.
3. Please see response to Question Q2.
4. No.
5. No, a pelletized form of anthropogenic run-off is not considered a synthesized fertilizer, and would be considered under this FOA.
6. Artificial nutrient addition, even for prototype testing purposes, is discouraged.

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**Q5. While preparing the concept paper for MARINER I noticed that the instructions in the template paper do not mention the need to include "Estimated federal funds requested; total project cost including cost sharing." regarding part C PROPOSED WORK, as it is indicated in the FOA pdf.**

**Thus could you please clarify the following, is the total budget, top of first page, sufficient for the concept paper or do we need a break down per task in the proposed work section?**

**ANSWER:** A task by task budget is not required for the concept paper. See Section IV.C (Content and Form of Concept Papers) of the FOA for additional information.

**Q6. Is more information on Figure 3 from the solicitation available? The text refers to an internal ARPA-E funded geo-spatial analysis conducted by Lux Research. Can a copy of this be obtained?**

**ANSWER:** This internal analysis is not currently available as a publication. It served only as a high-level assessment tool to estimate macroalgae production potential on a national and global scale. This analysis will not be used or considered during ARPA-E's evaluation of submissions to this FOA .

**Q7. While matching funds are not required for a small business, if significant in-kind matching funds are included in the proposal is there a metric or scale for how the amount would affect the decision for an award?**

**ANSWER:** Matching funds (described as "cost sharing" in the FOA) are required for small businesses. Please see Section III.B (Cost Sharing) of the FOA for additional information on cost sharing requirements. For information regarding the criteria used to evaluate submissions and program policy factors that may also be considered, see, respectively, Sections V.A (Criteria) and V.B (Review and Selection Process) of the FOA.

**Q8. I am planning on submitting my concept paper for the MARINER call today. Will there be a review of my format before the deadline of Feb 16?**

**ANSWER:** No. In addition, the submission deadline for Concept Papers is February 14, 2017.

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**Q9. We are preparing a concept paper on the development of a [modeling tool] for macroalgae farms in response to Category 3 of the MARINER FOA. A question arose regarding the model validation program that we have been planning, and I'm writing for clarification on the intent on the language in the "Technical Performance Targets" section.**

The FOA states that "It is expected that [Category 3] modeling tools will be ...made available to and tested with systems developed by teams in Category 1." Does this mean that ARPA-E prefers that model validation field studies (i.e. numerical model "testing") be reserved until Category 1 farms have been deployed? Our plan has been to include a model validation field study in our proposal, using existing small kelp farms, so that we would have a validated model to provide to Category 1 teams. But after re-reading the language above, we'd like to clarify whether field studies on existing farms fit within ARPA-E's intentions for Category 3 proposals.

**ANSWER:** While ARPA-E expects that Category 3 modeling tools may be made available to and tested with systems developed by Category 1 teams, including separate validation field studies in a Category 3 project plan is not prohibited.

**Q10. Please cite a reference regarding assertion for 5.2 that "contaminating" foreign DNA is a major challenge to sequencing.**

**ANSWER:** The presence of epiphytic bacteria on the surface of macroalgae has been well documented<sup>1</sup>. While quantitative data on the degree of contamination of macroalgae genome sequence data by bacterial DNA is limited in the current literature<sup>2</sup>, personal communications with genome sequencing experts has indicated that this is a significant problem.

References:

1) Michelou VK, Caporaso JG, Knight R, Palumbi SR (2013) The Ecology of Microbial Communities Associated with *Macrocystis pyrifera*. PLoS ONE 8(6): e67480.  
doi:10.1371/journal.pone.0067480

Ye, N., Zhang, X., Miao, M., Fan, X., Zheng, Y., Xu, D., ... Zhao, F. (2015). Saccharina genomes provide novel insight into kelp biology. Nature Communications, 6, 6986.  
<http://doi.org/10.1038/ncomms7986>